



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

**Date:** 5/31/2018  
**Subject:** Review of Region 5 Data for Central Sands  
**To:** Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
**From:** Amanda Wroble, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

A handwritten signature in black ink that reads "Amanda Wroble". The signature is written in a cursive, flowing style. Below the signature is a solid black horizontal line.

*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

**Attached are Results for: Central Sands**

**Analyses included in this report:**

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Metals ICP-AES (w)

Report Name: 1805007 Metals ICP-AES (w) FINAL May 31 18 1359



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Accredited Analyses included in this Report**



**Method:** EPA 200.7 in Water  
**Analysis:** Metals ICP-AES (w)

**Analyte**

**Certifications**

Aluminum	ISO/IEC 17025:2005
Aluminum hi	ISO/IEC 17025:2005
Antimony	ISO/IEC 17025:2005
Arsenic	ISO/IEC 17025:2005
Barium	ISO/IEC 17025:2005
Beryllium	ISO/IEC 17025:2005
Boron	ISO/IEC 17025:2005
Cadmium	ISO/IEC 17025:2005
Calcium	ISO/IEC 17025:2005
Chromium	ISO/IEC 17025:2005
Cobalt	ISO/IEC 17025:2005
Copper	ISO/IEC 17025:2005
Iron	ISO/IEC 17025:2005
Iron hi	ISO/IEC 17025:2005
Lead	ISO/IEC 17025:2005
Lithium	ISO/IEC 17025:2005
Magnesium	ISO/IEC 17025:2005
Magnesium hi	ISO/IEC 17025:2005
Manganese	ISO/IEC 17025:2005
Molybdenum	ISO/IEC 17025:2005
Nickel	ISO/IEC 17025:2005
Potassium	ISO/IEC 17025:2005
Selenium	ISO/IEC 17025:2005
Silver	ISO/IEC 17025:2005
Sodium	ISO/IEC 17025:2005
Strontium	ISO/IEC 17025:2005



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**Method:** EPA 200.7 in Water  
**Analysis:** Metals ICP-AES (w)

Analyte	Certifications
Thallium	ISO/IEC 17025:2005
Tin	ISO/IEC 17025:2005
Titanium	ISO/IEC 17025:2005
Vanadium	ISO/IEC 17025:2005
Zinc	ISO/IEC 17025:2005

Analytes not listed above are not accredited by ANAB.



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### ANALYSIS CASE NARRATIVE

#### GENERAL INFORMATION

CRL received water samples for trace metals analysis by inductively coupled plasma-atomic emission spectroscopy (ICP-AES). The assigned work order(s) and sample numbers to which this narrative applies are listed below:

Work Order (number of samples)	Batch Number
1805007 (44)	B18E017, B18E018

The designated analyst for these samples, Amanda Wroble, can be reached at 312.353.0375. All holding times were met.

Per pen & ink – 14097, the samples were not homogenized before subsampling. The samples were digested using CRL SOP METALS025, Rev. 3 (EPA Method 200.2) and analyzed using CRL SOP METALS003A, Rev. 4 (EPA Method 200.7/SW-846 Method 6010D).

#### SAMPLE ANALYSIS AND RESULTS

The data reported herein meet the requirements referenced in the SOP used for analysis and any laboratory specifications stated in the *Quality Assurance Project Plan/Sampling Plan for Environmental Compliance Assessment for Central Sands*, dated April 2018.

The results were reported over three analytical runs due to quality control audit failures within each run.

#### QUALITY CONTROL

All quality control audits that bracketed samples to which this narrative applies and the run in which a specific sample/analyte was reported were within CRL limits for the requested analytes or did not result in qualification of the data.

Digestion Blank Spike and Matrix Spike (BS): Blank Spike Recovery Limit =  $100 \pm 15\%$ ; Matrix Spike Recovery Limit =  $100 \pm 25\%$ . Titanium recoveries for B18E018-BS2 (118%) and B18E018-MS1 (137%) were outside their respective audit limits. Titanium results for B18E018 (1805007-21 thru -44) were flagged “K” for



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potential high bias.



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**WORK ORDER**

Printed: 5/7/2018 9:53:28AM

**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

**Client:** Water Division, WECA Region 5  
**Project:** Central Sands

**Project Manager:** Angela Ockrassa Davis  
**Project Number:** CB022018

**Report To:**

Cheryl Burdett  
Water Division, WECA Region 5

77 West Jackson Boulevard  
Chicago, IL 60604

Phone: (312) 886-1463  
Fax: (312) 886-2001

Date Due: Jun-04-18 15:00 (30 day TAT)

Received By: Robert Snyder

Logged In By: Robert Snyder

Date Received: May-04-18 10:00

Date Logged In: May-07-18 07:38

**Samples Received at:**

Sample tags/labels **Yes**  
Seals Intact **Yes**  
Received on ice **Yes**  
Paperwork Included **Yes**

**Work Order Comments:**

Copy/Relog from 1805005. Anions: Chloride and nitrate as NO3  
Full List metals  
pH paper used in SC 16H2601

**Sample ID:** 1805007-01 **Sampled:** May-02-18 06:38 **Matrix:** Water

**Sample Name:** D5a **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:38	pH = 1
Anions by IC	28	May-30-18 06:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 06:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:38	pH = 1
Solids, TDS	7	May-09-18 06:38	pH = 6
TKN DA	28	May-30-18 06:38	pH = 1
TOC	28	May-30-18 06:38	pH = 1
Total Phosphorus DA	28	May-30-18 06:38	pH = 1

**Sample ID:** 1805007-02 **Sampled:** May-02-18 06:46 **Matrix:** Water

**Sample Name:** D5b **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:46	pH = 1
Anions by IC	28	May-30-18 06:46	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 06:46	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:46	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-02      Sampled: May-02-18 06:46      Matrix: Water

Sample Name: D5b      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 06:46	pH = 5
TKN DA	28	May-30-18 06:46	pH = 1
TOC	28	May-30-18 06:46	pH = 1
Total Phosphorus DA	28	May-30-18 06:46	pH = 1

Sample ID: 1805007-03      Sampled: May-02-18 07:17      Matrix: Water

Sample Name: D6a      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:17	pH = 1
Anions by IC	28	May-30-18 07:17	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:17	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:17	pH = 1
Solids, TDS	7	May-09-18 07:17	pH = 6
TKN DA	28	May-30-18 07:17	pH = 1
TOC	28	May-30-18 07:17	pH = 1
Total Phosphorus DA	28	May-30-18 07:17	pH = 1

Sample ID: 1805007-04      Sampled: May-02-18 07:29      Matrix: Water

Sample Name: D6b      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:29	pH = 1
Anions by IC	28	May-30-18 07:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:29	pH = 1
Solids, TDS	7	May-09-18 07:29	pH = 6
TKN DA	28	May-30-18 07:29	pH = 1
TOC	28	May-30-18 07:29	pH = 1
Total Phosphorus DA	28	May-30-18 07:29	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-05](#) Sampled: [May-02-18 08:01](#) Matrix: [Water](#)

Sample Name: [D7 equip](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:01	pH = 1
Anions by IC	28	May-30-18 08:01	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:01	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:01	pH = 1
Solids, TDS	7	May-09-18 08:01	pH = 5
TKN DA	28	May-30-18 08:01	pH = 1
TOC	28	May-30-18 08:01	pH = 1
Total Phosphorus DA	28	May-30-18 08:01	pH = 1

Sample ID: [1805007-06](#) Sampled: [May-02-18 08:03](#) Matrix: [Water](#)

Sample Name: [FB3](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:03	pH = 1
Anions by IC	28	May-30-18 08:03	pH = 4
Metals ICP-AES (w)	180	Oct-29-18 08:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:03	pH = 1
Solids, TDS	7	May-09-18 08:03	pH = 4
TKN DA	28	May-30-18 08:03	pH = 1
TOC	28	May-30-18 08:03	pH = 1
Total Phosphorus DA	28	May-30-18 08:03	pH = 1

Sample ID: [1805007-07](#) Sampled: [May-02-18 08:12](#) Matrix: [Water](#)

Sample Name: [D7a Dup](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1



1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-07](#) Sampled: [May-02-18 08:12](#) Matrix: [Water](#)

Sample Name: [D7a Dup](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: [1805007-08](#) Sampled: [May-02-18 08:12](#) Matrix: [Water](#)

[QC Source Sample MS/MSD](#)

Sample Name: [D7a](#) Sample Location/Comments: [23rd Avenue](#)

Sample Comments: [MS/MSD](#)

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: [1805007-09](#) Sampled: [May-02-18 08:19](#) Matrix: [Water](#)

Sample Name: [D7b](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:19	pH = 1
Anions by IC	28	May-30-18 08:19	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:19	pH = 1
Solids, TDS	7	May-09-18 08:19	pH = 5
TKN DA	28	May-30-18 08:19	pH = 1
TOC	28	May-30-18 08:19	pH = 1
Total Phosphorus DA	28	May-30-18 08:19	pH = 1

Sample ID: [1805007-10](#) Sampled: [May-02-18 08:55](#) Matrix: [Water](#)

Sample Name: [D8a](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:55	pH = 1
Anions by IC	28	May-30-18 08:55	pH = 6

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-10](#) Sampled: [May-02-18 08:55](#) Matrix: [Water](#)

Sample Name: [D8a](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 08:55	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:55	pH = 1
Solids, TDS	7	May-09-18 08:55	pH = 6
TKN DA	28	May-30-18 08:55	pH = 1
TOC	28	May-30-18 08:55	pH = 1
Total Phosphorus DA	28	May-30-18 08:55	pH = 1

Sample ID: [1805007-11](#) Sampled: [May-02-18 09:11](#) Matrix: [Water](#)

Sample Name: [D8b](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:11	pH = 1
Anions by IC	28	May-30-18 09:11	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:11	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:11	pH = 1
Solids, TDS	7	May-09-18 09:11	pH = 6
TKN DA	28	May-30-18 09:11	pH = 1
TOC	28	May-30-18 09:11	pH = 1
Total Phosphorus DA	28	May-30-18 09:11	pH = 1

Sample ID: [1805007-12](#) Sampled: [May-02-18 09:45](#) Matrix: [Water](#)

Sample Name: [D9a](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:45	pH = 1
Anions by IC	28	May-30-18 09:45	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:45	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:45	pH = 1
Solids, TDS	7	May-09-18 09:45	pH = 6
TKN DA	28	May-30-18 09:45	pH = 1
TOC	28	May-30-18 09:45	pH = 1
Total Phosphorus DA	28	May-30-18 09:45	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-13](#)      Sampled: [May-02-18 09:54](#)      Matrix: [Water](#)

Sample Name: [D9b](#)      Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:54	pH = 1
Anions by IC	28	May-30-18 09:54	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:54	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:54	pH = 1
Solids, TDS	7	May-09-18 09:54	pH = 6
TKN DA	28	May-30-18 09:54	pH = 1
TOC	28	May-30-18 09:54	pH = 1
Total Phosphorus DA	28	May-30-18 09:54	pH = 1

Sample ID: [1805007-14](#)      Sampled: [May-02-18 10:29](#)      Matrix: [Water](#)

Sample Name: [D10a](#)      Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: [1805007-15](#)      Sampled: [May-02-18 10:29](#)      Matrix: [Water](#)

Sample Name: [D10a Dup](#)      Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-15](#) Sampled: [May-02-18 10:29](#) Matrix: [Water](#)

Sample Name: [D10a Dup](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: [1805007-16](#) Sampled: [May-02-18 10:41](#) Matrix: [Water](#)

Sample Name: [D10b](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: [1805007-17](#) Sampled: [May-02-18 10:41](#) Matrix: [Water](#)

Sample Name: [D10b Dup](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: [1805007-18](#) Sampled: [May-02-18 11:19](#) Matrix: [Water](#)

Sample Name: [D11a](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:19	pH = 1
Anions by IC	28	May-30-18 11:19	pH = 6

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-18](#) Sampled: [May-02-18 11:19](#) Matrix: [Water](#)

Sample Name: [D11a](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 11:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:19	pH = 1
Solids, TDS	7	May-09-18 11:19	pH = 6
TKN DA	28	May-30-18 11:19	pH = 1
TOC	28	May-30-18 11:19	pH = 1
Total Phosphorus DA	28	May-30-18 11:19	pH = 1

Sample ID: [1805007-19](#) Sampled: [May-02-18 11:42](#) Matrix: [Water](#)

Sample Name: [D11b](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:42	pH = 1
Anions by IC	28	May-30-18 11:42	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 11:42	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:42	pH = 1
Solids, TDS	7	May-09-18 11:42	pH = 5
TKN DA	28	May-30-18 11:42	pH = 1
TOC	28	May-30-18 11:42	pH = 1
Total Phosphorus DA	28	May-30-18 11:42	pH = 1

Sample ID: [1805007-20](#) Sampled: [May-02-18 12:41](#) Matrix: [Water](#)

Sample Name: [E1a](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:41	pH = 1
Anions by IC	28	May-30-18 12:41	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:41	pH = 1
Solids, TDS	7	May-09-18 12:41	pH = 6
TKN DA	28	May-30-18 12:41	pH = 1
TOC	28	May-30-18 12:41	pH = 1
Total Phosphorus DA	28	May-30-18 12:41	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-21](#) Sampled: [May-02-18 12:58](#) Matrix: [Water](#)

Sample Name: [E1b](#) Sample Location/Comments: [23rd Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:58	pH = 1
Anions by IC	28	May-30-18 12:58	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:58	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:58	pH = 1
Solids, TDS	7	May-09-18 12:58	pH = 6
TKN DA	28	May-30-18 12:58	pH = 1
TOC	28	May-30-18 12:58	pH = 1
Total Phosphorus DA	28	May-30-18 12:58	pH = 1

Sample ID: [1805007-22](#) Sampled: [May-02-18 13:28](#) Matrix: [Water](#)

Sample Name: [E2a](#) Sample Location/Comments: [Porter Road](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: [1805007-23](#) Sampled: [May-02-18 13:37](#) Matrix: [Water](#)

Sample Name: [E2b](#) Sample Location/Comments: [Porter Road](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-23](#) Sampled: [May-02-18 13:37](#) Matrix: [Water](#)

Sample Name: [E2b](#) Sample Location/Comments: [Porter Road](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: [1805007-24](#) Sampled: [May-02-18 13:28](#) Matrix: [Water](#)

Sample Name: [E2a Dup](#) Sample Location/Comments: [Porter Road](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: [1805007-25](#) Sampled: [May-02-18 13:37](#) Matrix: [Water](#)

Sample Name: [E2b Dup](#) Sample Location/Comments: [Porter Road](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: [1805007-26](#) Sampled: [May-02-18 14:03](#) Matrix: [Water](#)

Sample Name: [E3a](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:03	pH = 1
Anions by IC	28	May-30-18 14:03	pH = 6

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-26](#) Sampled: [May-02-18 14:03](#) Matrix: [Water](#)

Sample Name: [E3a](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 14:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:03	pH = 1
Solids, TDS	7	May-09-18 14:03	pH = 6
TKN DA	28	May-30-18 14:03	pH = 1
TOC	28	May-30-18 14:03	pH = 1
Total Phosphorus DA	28	May-30-18 14:03	pH = 1

Sample ID: [1805007-27](#) Sampled: [May-02-18 14:09](#) Matrix: [Water](#)

Sample Name: [E3b](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:09	pH = 1
Anions by IC	28	May-30-18 14:09	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:09	pH = 1
Solids, TDS	7	May-09-18 14:09	pH = 6
TKN DA	28	May-30-18 14:09	pH = 1
TOC	28	May-30-18 14:09	pH = 1
Total Phosphorus DA	28	May-30-18 14:09	pH = 1

Sample ID: [1805007-28](#) Sampled: [May-02-18 14:37](#) Matrix: [Water](#)

Sample Name: [E4a](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:37	pH = 1
Anions by IC	28	May-30-18 14:37	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:37	pH = 1
Solids, TDS	7	May-09-18 14:37	pH = 6
TKN DA	28	May-30-18 14:37	pH = 1
TOC	28	May-30-18 14:37	pH = 1
Total Phosphorus DA	28	May-30-18 14:37	pH = 1



1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-29](#)      Sampled: [May-02-18 14:43](#)      Matrix: [Water](#)

Sample Name: [E4b](#)      Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:43	pH = 1
Anions by IC	28	May-30-18 14:43	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:43	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:43	pH = 1
Solids, TDS	7	May-09-18 14:43	pH = 6
TKN DA	28	May-30-18 14:43	pH = 1
TOC	28	May-30-18 14:43	pH = 1
Total Phosphorus DA	28	May-30-18 14:43	pH = 1

Sample ID: [1805007-30](#)      Sampled: [May-02-18 15:08](#)      Matrix: [Water](#)

Sample Name: [E5a](#)      Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:08	pH = 1
Anions by IC	28	May-30-18 15:08	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:08	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:08	pH = 1
Solids, TDS	7	May-09-18 15:08	pH = 6
TKN DA	28	May-30-18 15:08	pH = 1
TOC	28	May-30-18 15:08	pH = 1
Total Phosphorus DA	28	May-30-18 15:08	pH = 1

Sample ID: [1805007-31](#)      Sampled: [May-02-18 15:13](#)      Matrix: [Water](#)

Sample Name: [E5b](#)      Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:13	pH = 1
Anions by IC	28	May-30-18 15:13	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:13	pH = 1
Solids, TDS	7	May-09-18 15:13	pH = 6
TKN DA	28	May-30-18 15:13	pH = 1
TOC	28	May-30-18 15:13	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-31](#) Sampled: [May-02-18 15:13](#) Matrix: [Water](#)

Sample Name: [E5b](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 15:13	pH = 1

Sample ID: [1805007-32](#) Sampled: [May-02-18 15:38](#) Matrix: [Water](#)

Sample Name: [E6a](#) Sample Location/Comments: [20th Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:38	pH = 1
Anions by IC	28	May-30-18 15:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:38	pH = 1
Solids, TDS	7	May-09-18 15:38	pH = 6
TKN DA	28	May-30-18 15:38	pH = 1
TOC	28	May-30-18 15:38	pH = 1
Total Phosphorus DA	28	May-30-18 15:38	pH = 1

Sample ID: [1805007-33](#) Sampled: [May-02-18 15:44](#) Matrix: [Water](#)

Sample Name: [E6b](#) Sample Location/Comments: [20th Avenue](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:44	pH = 1
Anions by IC	28	May-30-18 15:44	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:44	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:44	pH = 1
Solids, TDS	7	May-09-18 15:44	pH = 6
TKN DA	28	May-30-18 15:44	pH = 1
TOC	28	May-30-18 15:44	pH = 1
Total Phosphorus DA	28	May-30-18 15:44	pH = 1

Sample ID: [1805007-34](#) Sampled: [May-02-18 16:09](#) Matrix: [Water](#)

Sample Name: [E7a](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:09	pH = 1
Anions by IC	28	May-30-18 16:09	pH = 5

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-34](#) Sampled: [May-02-18 16:09](#) Matrix: [Water](#)

Sample Name: [E7a](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 16:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:09	pH = 1
Solids, TDS	7	May-09-18 16:09	pH = 5
TKN DA	28	May-30-18 16:09	pH = 1
TOC	28	May-30-18 16:09	pH = 1
Total Phosphorus DA	28	May-30-18 16:09	pH = 1

Sample ID: [1805007-35](#) Sampled: [May-02-18 16:35](#) Matrix: [Water](#)

Sample Name: [E7b](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:35	pH = 1
Anions by IC	28	May-30-18 16:35	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 16:35	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:35	pH = 1
Solids, TDS	7	May-09-18 16:35	pH = 5
TKN DA	28	May-30-18 16:35	pH = 1
TOC	28	May-30-18 16:35	pH = 1
Total Phosphorus DA	28	May-30-18 16:35	pH = 1

Sample ID: [1805007-36](#) Sampled: [May-03-18 08:40](#) Matrix: [Water](#)

Sample Name: [E8a](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:40	pH = 1
Anions by IC	28	May-31-18 08:40	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 08:40	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:40	pH = 1
Solids, TDS	7	May-10-18 08:40	pH = 5
TKN DA	28	May-31-18 08:40	pH = 1
TOC	28	May-31-18 08:40	pH = 1
Total Phosphorus DA	28	May-31-18 08:40	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-37](#) Sampled: [May-03-18 08:48](#) Matrix: [Water](#)

Sample Name: [E8b](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:48	pH = 1
Anions by IC	28	May-31-18 08:48	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 08:48	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:48	pH = 1
Solids, TDS	7	May-10-18 08:48	pH = 6
TKN DA	28	May-31-18 08:48	pH = 1
TOC	28	May-31-18 08:48	pH = 1
Total Phosphorus DA	28	May-31-18 08:48	pH = 1

Sample ID: [1805007-38](#) Sampled: [May-03-18 07:15](#) Matrix: [Water](#)

Sample Name: [E10a](#) Sample Location/Comments: [8th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: [1805007-39](#) Sampled: [May-03-18 07:15](#) Matrix: [Water](#)

Sample Name: [E10a Dup](#) Sample Location/Comments: [8th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-39](#) Sampled: [May-03-18 07:15](#) Matrix: [Water](#)

Sample Name: [E10a Dup](#) Sample Location/Comments: [8th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: [1805007-40](#) Sampled: [May-03-18 07:27](#) Matrix: [Water](#)

Sample Name: [E10b](#) Sample Location/Comments: [8th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:27	pH = 1
Anions by IC	28	May-31-18 07:27	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:27	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:27	pH = 1
Solids, TDS	7	May-10-18 07:27	pH = 6
TKN DA	28	May-31-18 07:27	pH = 1
TOC	28	May-31-18 07:27	pH = 1
Total Phosphorus DA	28	May-31-18 07:27	pH = 1

Sample ID: [1805007-41](#) Sampled: [May-03-18 07:36](#) Matrix: [Water](#)

Sample Name: [FB4](#) Sample Location/Comments: [8th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:36	pH = 1
Anions by IC	28	May-31-18 07:36	pH = 4
Metals ICP-AES (w)	180	Oct-30-18 07:36	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:36	pH = 1
Solids, TDS	7	May-10-18 07:36	pH = 4
TKN DA	28	May-31-18 07:36	pH = 1
TOC	28	May-31-18 07:36	pH = 1
Total Phosphorus DA	28	May-31-18 07:36	pH = 1

Sample ID: [1805007-42](#) Sampled: [May-03-18 07:13](#) Matrix: [Water](#)

Sample Name: [E10 Equip](#) Sample Location/Comments: [8th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:13	pH = 1
Anions by IC	28	May-31-18 07:13	pH = 4

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: [1805007-42](#) Sampled: [May-03-18 07:13](#) Matrix: [Water](#)

Sample Name: [E10 Equip](#) Sample Location/Comments: [8th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-30-18 07:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:13	pH = 1
Solids, TDS	7	May-10-18 07:13	pH = 4
TKN DA	28	May-31-18 07:13	pH = 1
TOC	28	May-31-18 07:13	pH = 1
Total Phosphorus DA	28	May-31-18 07:13	pH = 1

Sample ID: [1805007-43](#) Sampled: [May-03-18 09:53](#) Matrix: [Water](#)

Sample Name: [E9a](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 09:53	pH = 1
Anions by IC	28	May-31-18 09:53	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 09:53	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 09:53	pH = 1
Solids, TDS	7	May-10-18 09:53	pH = 5
TKN DA	28	May-31-18 09:53	pH = 1
TOC	28	May-31-18 09:53	pH = 1
Total Phosphorus DA	28	May-31-18 09:53	pH = 1

Sample ID: [1805007-44](#) Sampled: [May-03-18 10:02](#) Matrix: [Water](#)

Sample Name: [E9b](#) Sample Location/Comments: [7th Street](#)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 10:02	pH = 1
Anions by IC	28	May-31-18 10:02	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 10:02	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 10:02	pH = 1
Solids, TDS	7	May-10-18 10:02	pH = 5
TKN DA	28	May-31-18 10:02	pH = 1
TOC	28	May-31-18 10:02	pH = 1
Total Phosphorus DA	28	May-31-18 10:02	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED***By Robert Thompson at 9:54 am, May 07, 2018*

Reviewed By

Date



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D5a (1805007-01)**

**Matrix: Water**

**Sampled: May-02-18 06:38**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.65			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.409			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	60.5			0.200	"	"	"	"	"
Chromium	0.406			0.005	"	"	"	"	"
Cobalt	0.0176			0.006	"	"	"	"	"
Copper	0.167			0.0200	"	"	"	"	"
Iron	58.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	28.8			0.200	"	"	"	"	"
Manganese	4.84			0.008	"	"	"	"	"
Molybdenum	0.0504			0.0120	"	"	"	"	"
Nickel	0.0835			0.0120	"	"	"	"	"
Potassium	3.43			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	2.58			0.400	"	"	"	"	"
Strontium	0.0808			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0473			0.006	"	"	"	"	"
Vanadium	0.0122			0.005	"	"	"	"	"
Zinc	0.0336			0.0300	"	"	"	"	"





Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D5b (1805007-02)**

**Matrix: Water**

**Sampled: May-02-18 06:46**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	10.6			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.332			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	14.4			0.200	"	"	"	"	"
Chromium	0.182			0.005	"	"	"	"	"
Cobalt	0.0248			0.006	"	"	"	"	"
Copper	0.0750			0.0200	"	"	"	"	"
Iron	27.5			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	4.94			0.200	"	"	"	"	"
Manganese	2.88			0.008	"	"	"	"	"
Molybdenum	0.0179			0.0120	"	"	"	"	"
Nickel	0.0379			0.0120	"	"	"	"	"
Potassium	2.25			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	1.73			0.400	"	"	"	"	"
Strontium	0.0677			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0655			0.006	"	"	"	"	"
Vanadium	0.0488			0.005	"	"	"	"	"
Zinc	0.0560			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D6a (1805007-03)**

**Matrix: Water**

**Sampled: May-02-18 07:17**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.94			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.237			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0949			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	154			0.200	"	"	"	"	"
Chromium	0.217			0.005	"	"	"	"	"
Cobalt	0.0097			0.006	"	"	"	"	"
Copper	0.0730			0.0200	"	"	"	"	"
Iron	30.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	85.4			0.200	"	"	"	"	"
Manganese	0.658			0.008	"	"	"	"	"
Molybdenum	0.0350			0.0120	"	"	"	"	"
Nickel	0.0426			0.0120	"	"	"	"	"
Potassium	10.5			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	16.2			0.400	"	"	"	"	"
Strontium	0.517			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0383			0.006	"	"	"	"	"
Vanadium	0.0086			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D6b (1805007-04)**

**Matrix: Water**

**Sampled: May-02-18 07:29**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.08			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.165			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0982			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	138			0.200	"	"	"	"	"
Chromium	0.324			0.005	"	"	"	"	"
Cobalt	0.0132			0.006	"	"	"	"	"
Copper	0.117			0.0200	"	"	"	"	"
Iron	43.8			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	65.0			0.200	"	"	"	"	"
Manganese	1.26			0.008	"	"	"	"	"
Molybdenum	0.0405			0.0120	"	"	"	"	"
Nickel	0.0576			0.0120	"	"	"	"	"
Potassium	25.8			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	13.3			0.400	"	"	"	"	"
Strontium	0.197			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0334			0.006	"	"	"	"	"
Vanadium	0.0123			0.005	"	"	"	"	"
Zinc	0.0751			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

D7 equip (1805007-05)

Matrix: Water

Sampled: May-02-18 08:01

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	U			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	U			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	U			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	U			0.200	"	"	"	"	"
Manganese	U			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	U			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	U			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**FB3 (1805007-06)**

**Matrix: Water**

**Sampled: May-02-18 08:03**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	U			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	U			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	U			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	U			0.200	"	"	"	"	"
Manganese	U			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	U			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	U			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

D7a Dup (1805007-07)

Matrix: Water

Sampled: May-02-18 08:12

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.07			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.136			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	118			0.200	"	"	"	"	"
Chromium	0.0286			0.005	"	"	"	"	"
Cobalt	0.0269			0.006	"	"	"	"	"
Copper	0.0432			0.0200	"	"	"	"	"
Iron	7.25			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	52.7			0.200	"	"	"	"	"
Manganese	2.13			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0333			0.0120	"	"	"	"	"
Potassium	2.24			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	5.20			0.400	"	"	"	"	"
Strontium	0.186			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0347			0.006	"	"	"	"	"
Vanadium	0.0086			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

D7a (1805007-08)

Matrix: Water

Sampled: May-02-18 08:12

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	0.874			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.146			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	96.8			0.200	"	"	"	"	"
Chromium	0.0277			0.005	"	"	"	"	"
Cobalt	0.0305			0.006	"	"	"	"	"
Copper	0.0470			0.0200	"	"	"	"	"
Iron	6.14			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	40.7			0.200	"	"	"	"	May-10-18
Manganese	2.28			0.008	"	"	"	"	May-10-18
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0341			0.0120	"	"	"	"	"
Potassium	2.16			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	5.25			0.400	"	"	"	"	"
Strontium	0.175			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0339			0.006	"	"	"	"	"
Vanadium	0.0063			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D7b (1805007-09)**

**Matrix: Water**

**Sampled: May-02-18 08:19**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	7.51			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.420			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	106			0.200	"	"	"	"	"
Chromium	0.280			0.005	"	"	"	"	"
Cobalt	0.0398			0.006	"	"	"	"	"
Copper	0.150			0.0200	"	"	"	"	"
Iron	41.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	28.6			0.200	"	"	"	"	May-10-18
Manganese	6.69			0.008	"	"	"	"	May-10-18
Molybdenum	0.0247			0.0120	"	"	"	"	"
Nickel	0.0705			0.0120	"	"	"	"	"
Potassium	20.5			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	6.90			0.400	"	"	"	"	"
Strontium	0.612			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0554			0.006	"	"	"	"	"
Vanadium	0.0233			0.005	"	"	"	"	"
Zinc	0.107			0.0300	"	"	"	"	"





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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D8a (1805007-10)**

**Matrix: Water**

**Sampled: May-02-18 08:55**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.11			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.262			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0566			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	171			0.200	"	"	"	"	"
Chromium	0.131			0.005	"	"	"	"	"
Cobalt	0.0129			0.006	"	"	"	"	"
Copper	0.0874			0.0200	"	"	"	"	"
Iron	22.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	78.6			0.200	"	"	"	"	May-10-18
Manganese	3.24			0.008	"	"	"	"	May-10-18
Molybdenum	0.0153			0.0120	"	"	"	"	"
Nickel	0.0436			0.0120	"	"	"	"	"
Potassium	9.38			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	12.2			0.400	"	"	"	"	"
Strontium	0.617			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0275			0.006	"	"	"	"	"
Vanadium	0.0085			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

D8b (1805007-11)

Matrix: Water

Sampled: May-02-18 09:11

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.35			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.370			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0954			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	109			0.200	"	"	"	"	"
Chromium	0.342			0.005	"	"	"	"	"
Cobalt	0.0417			0.006	"	"	"	"	"
Copper	0.209			0.0200	"	"	"	"	"
Iron	44.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	53.7			0.200	"	"	"	"	May-10-18
Manganese	9.73			0.008	"	"	"	"	May-10-18
Molybdenum	0.0231			0.0120	"	"	"	"	"
Nickel	0.0950			0.0120	"	"	"	"	"
Potassium	20.6			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	17.0			0.400	"	"	"	"	"
Strontium	0.262			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0405			0.006	"	"	"	"	"
Vanadium	0.0231			0.005	"	"	"	"	"
Zinc	0.0760			0.0300	"	"	"	"	"



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

D9a (1805007-12)

Matrix: Water

Sampled: May-02-18 09:45

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.68			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.180			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0521			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	133			0.200	"	"	"	"	"
Chromium	0.128			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0569			0.0200	"	"	"	"	"
Iron	19.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	63.4			0.200	"	"	"	"	May-10-18
Manganese	1.03			0.008	"	"	"	"	May-10-18
Molybdenum	0.0138			0.0120	"	"	"	"	"
Nickel	0.0313			0.0120	"	"	"	"	"
Potassium	6.40			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	7.09			0.400	"	"	"	"	"
Strontium	0.743			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0202			0.006	"	"	"	"	"
Vanadium	0.006			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D9b (1805007-13)**

**Matrix: Water**

**Sampled: May-02-18 09:54**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.58			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.398			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	36.8			0.200	"	"	"	"	"
Chromium	0.230			0.005	"	"	"	"	"
Cobalt	0.0233			0.006	"	"	"	"	"
Copper	0.124			0.0200	"	"	"	"	"
Iron	31.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	16.7			0.200	"	"	"	"	May-10-18
Manganese	2.13			0.008	"	"	"	"	May-10-18
Molybdenum	0.0188			0.0120	"	"	"	"	"
Nickel	0.0486			0.0120	"	"	"	"	"
Potassium	3.33			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	2.81			0.400	"	"	"	"	"
Strontium	0.139			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0341			0.006	"	"	"	"	"
Vanadium	0.0277			0.005	"	"	"	"	"
Zinc	0.0434			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D10a (1805007-14)**

**Matrix: Water**

**Sampled: May-02-18 10:29**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.54			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.194			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	130			0.200	"	"	"	"	"
Chromium	0.265			0.005	"	"	"	"	"
Cobalt	0.0107			0.006	"	"	"	"	"
Copper	0.0951			0.0200	"	"	"	"	"
Iron	36.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	66.3			0.200	"	"	"	"	May-10-18
Manganese	1.97			0.008	"	"	"	"	May-10-18
Molybdenum	0.0353			0.0120	"	"	"	"	"
Nickel	0.0592			0.0120	"	"	"	"	"
Potassium	5.91			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	3.59			0.400	"	"	"	"	"
Strontium	0.214			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0270			0.006	"	"	"	"	"
Vanadium	0.0071			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D10a Dup (1805007-15)**

**Matrix: Water**

**Sampled: May-02-18 10:29**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.81			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.156			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	105			0.200	"	"	"	"	"
Chromium	0.187			0.005	"	"	"	"	"
Cobalt	0.0083			0.006	"	"	"	"	"
Copper	0.0684			0.0200	"	"	"	"	"
Iron	24.8			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	51.3			0.200	"	"	"	"	May-10-18
Manganese	1.56			0.008	"	"	"	"	May-10-18
Molybdenum	0.0269			0.0120	"	"	"	"	"
Nickel	0.0412			0.0120	"	"	"	"	"
Potassium	5.38			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	3.42			0.400	"	"	"	"	"
Strontium	0.207			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0220			0.006	"	"	"	"	"
Vanadium	0.0054			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D10b (1805007-16)**

**Matrix: Water**

**Sampled: May-02-18 10:41**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.63			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.297			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	49.8			0.200	"	"	"	"	"
Chromium	0.218			0.005	"	"	"	"	"
Cobalt	0.0152			0.006	"	"	"	"	"
Copper	0.104			0.0200	"	"	"	"	"
Iron	29.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	20.8			0.200	"	"	"	"	May-10-18
Manganese	5.00			0.008	"	"	"	"	May-10-18
Molybdenum	0.0225			0.0120	"	"	"	"	"
Nickel	0.0531			0.0120	"	"	"	"	"
Potassium	3.39			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	3.63			0.400	"	"	"	"	"
Strontium	0.210			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0309			0.006	"	"	"	"	"
Vanadium	0.0151			0.005	"	"	"	"	"
Zinc	0.0494			0.0300	"	"	"	"	"



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Project: Central Sands  
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Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D10b Dup (1805007-17)**

**Matrix: Water**

**Sampled: May-02-18 10:41**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.82			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.330			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	51.0			0.200	"	"	"	"	"
Chromium	0.201			0.005	"	"	"	"	"
Cobalt	0.0166			0.006	"	"	"	"	"
Copper	0.105			0.0200	"	"	"	"	"
Iron	29.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	21.7			0.200	"	"	"	"	May-10-18
Manganese	6.74			0.008	"	"	"	"	May-10-18
Molybdenum	0.0174			0.0120	"	"	"	"	"
Nickel	0.0529			0.0120	"	"	"	"	"
Potassium	3.28			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	3.59			0.400	"	"	"	"	"
Strontium	0.213			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0359			0.006	"	"	"	"	"
Vanadium	0.0226			0.005	"	"	"	"	"
Zinc	0.0550			0.0300	"	"	"	"	"





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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D11a (1805007-18)**

**Matrix: Water**

**Sampled: May-02-18 11:19**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.83			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.357			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	87.4			0.200	"	"	"	"	"
Chromium	0.0166			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0388			0.0200	"	"	"	"	"
Iron	3.33			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	43.5			0.200	"	"	"	"	May-10-18
Manganese	2.58			0.008	"	"	"	"	May-10-18
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0120			0.0120	"	"	"	"	"
Potassium	3.35			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	7.49			0.400	"	"	"	"	"
Strontium	0.373			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0124			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D11b (1805007-19)**

**Matrix: Water**

**Sampled: May-02-18 11:42**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.36			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.193			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0654			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	45.5			0.200	"	"	"	"	"
Chromium	0.0224			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0278			0.0200	"	"	"	"	"
Iron	4.03			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	16.7			0.200	"	"	"	"	May-10-18
Manganese	2.27			0.008	"	"	"	"	May-10-18
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	15.9			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	9.29			0.400	"	"	"	"	"
Strontium	0.123			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0207			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E1a (1805007-20)

Matrix: Water

Sampled: May-02-18 12:41

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.03			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.173			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0509			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	110			0.200	"	"	"	"	"
Chromium	0.0728			0.005	"	"	"	"	"
Cobalt	0.0104			0.006	"	"	"	"	"
Copper	0.0754			0.0200	"	"	"	"	"
Iron	11.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	52.3			0.200	"	"	"	"	May-10-18
Manganese	4.35			0.008	"	"	"	"	May-10-18
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0257			0.0120	"	"	"	"	"
Potassium	2.28			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	4.58			0.400	"	"	"	"	"
Strontium	0.307			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0270			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E1b (1805007-21)

Matrix: Water

Sampled: May-02-18 12:58

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.06			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.611			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	73.5			0.200	"	"	"	"	"
Chromium	0.199			0.005	"	"	"	"	"
Cobalt	0.0698			0.006	"	"	"	"	"
Copper	0.112			0.0200	"	"	"	"	"
Iron	30.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	21.2			0.200	"	"	"	"	"
Manganese	5.08			0.008	"	"	"	"	"
Molybdenum	0.0133			0.0120	"	"	"	"	"
Nickel	0.0566			0.0120	"	"	"	"	"
Potassium	8.86			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.94			0.400	"	"	"	"	"
Strontium	0.480			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0276	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0216			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E2a (1805007-22)

Matrix: Water

Sampled: May-02-18 13:28

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.09			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.101			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	38.8			0.200	"	"	"	"	"
Chromium	0.0397			0.005	"	"	"	"	"
Cobalt	0.0174			0.006	"	"	"	"	"
Copper	0.0546			0.0200	"	"	"	"	"
Iron	8.17			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	19.9			0.200	"	"	"	"	"
Manganese	2.46			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0312			0.0120	"	"	"	"	"
Potassium	1.72			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	23.3			0.400	"	"	"	"	"
Strontium	0.0553			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0272	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0061			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E2b (1805007-23)

Matrix: Water

Sampled: May-02-18 13:37

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.92			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.371			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	29.9			0.200	"	"	"	"	"
Chromium	0.179			0.005	"	"	"	"	"
Cobalt	0.0302			0.006	"	"	"	"	"
Copper	0.126			0.0200	"	"	"	"	"
Iron	29.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	12.1			0.200	"	"	"	"	"
Manganese	3.93			0.008	"	"	"	"	"
Molybdenum	0.0167			0.0120	"	"	"	"	"
Nickel	0.0641			0.0120	"	"	"	"	"
Potassium	4.02			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.00			0.400	"	"	"	"	"
Strontium	0.140			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0296	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0238			0.005	"	"	"	"	May-10-18
Zinc	0.0363			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E2a Dup (1805007-24)

Matrix: Water

Sampled: May-02-18 13:28

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.51			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.164			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	87.4			0.200	"	"	"	"	"
Chromium	0.0509			0.005	"	"	"	"	"
Cobalt	0.0223			0.006	"	"	"	"	"
Copper	0.0793			0.0200	"	"	"	"	"
Iron	10.5			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	49.5			0.200	"	"	"	"	"
Manganese	3.73			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0447			0.0120	"	"	"	"	"
Potassium	1.92			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	24.0			0.400	"	"	"	"	"
Strontium	0.0796			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0282	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0075			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E2b Dup (1805007-25)

Matrix: Water

Sampled: May-02-18 13:37

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.44			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.480			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	31.9			0.200	"	"	"	"	"
Chromium	0.204			0.005	"	"	"	"	"
Cobalt	0.0355			0.006	"	"	"	"	"
Copper	0.141			0.0200	"	"	"	"	"
Iron	31.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	13.4			0.200	"	"	"	"	"
Manganese	4.86			0.008	"	"	"	"	"
Molybdenum	0.0129			0.0120	"	"	"	"	"
Nickel	0.0694			0.0120	"	"	"	"	"
Potassium	4.36			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.26			0.400	"	"	"	"	"
Strontium	0.148			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0282	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0241			0.005	"	"	"	"	May-10-18
Zinc	0.0449			0.0300	"	"	"	"	"





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Project: Central Sands  
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Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E3a (1805007-26)

Matrix: Water

Sampled: May-02-18 14:03

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.08			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.228			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	118			0.200	"	"	"	"	"
Chromium	0.123			0.005	"	"	"	"	"
Cobalt	0.0228			0.006	"	"	"	"	"
Copper	0.0724			0.0200	"	"	"	"	"
Iron	24.8			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	68.6			0.200	"	"	"	"	"
Manganese	2.01			0.008	"	"	"	"	"
Molybdenum	0.0152			0.0120	"	"	"	"	"
Nickel	0.0543			0.0120	"	"	"	"	"
Potassium	2.48			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.11			0.400	"	"	"	"	"
Strontium	0.101			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0227	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0076			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E3b (1805007-27)

Matrix: Water

Sampled: May-02-18 14:09

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.43			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.215			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0519			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	81.6			0.200	"	"	"	"	"
Chromium	0.240			0.005	"	"	"	"	"
Cobalt	0.0326			0.006	"	"	"	"	"
Copper	0.0921			0.0200	"	"	"	"	"
Iron	31.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	45.2			0.200	"	"	"	"	"
Manganese	2.68			0.008	"	"	"	"	"
Molybdenum	0.0246			0.0120	"	"	"	"	"
Nickel	0.0513			0.0120	"	"	"	"	"
Potassium	2.20			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.76			0.400	"	"	"	"	"
Strontium	0.108			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0274	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0076			0.005	"	"	"	"	May-10-18
Zinc	0.0356			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E4a (1805007-28)

Matrix: Water

Sampled: May-02-18 14:37

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.09			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.251			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0542			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	161			0.200	"	"	"	"	"
Chromium	0.293			0.005	"	"	"	"	"
Cobalt	0.0148			0.006	"	"	"	"	"
Copper	0.121			0.0200	"	"	"	"	"
Iron	45.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	76.9			0.200	"	"	"	"	"
Manganese	1.25			0.008	"	"	"	"	"
Molybdenum	0.0463			0.0120	"	"	"	"	"
Nickel	0.0658			0.0120	"	"	"	"	"
Potassium	4.36			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.46			0.400	"	"	"	"	"
Strontium	0.367			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0346	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0111			0.005	"	"	"	"	May-10-18
Zinc	0.0325			0.0300	"	"	"	"	"



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Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E4b (1805007-29)

Matrix: Water

Sampled: May-02-18 14:43

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	8.12			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.437			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	71.8			0.200	"	"	"	"	"
Chromium	0.306			0.005	"	"	"	"	"
Cobalt	0.0450			0.006	"	"	"	"	"
Copper	0.183			0.0200	"	"	"	"	"
Iron	49.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	27.7			0.200	"	"	"	"	"
Manganese	5.97			0.008	"	"	"	"	"
Molybdenum	0.0347			0.0120	"	"	"	"	"
Nickel	0.0864			0.0120	"	"	"	"	"
Potassium	17.6			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.12			0.400	"	"	"	"	"
Strontium	0.625			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0519	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0226			0.005	"	"	"	"	May-10-18
Zinc	0.0601			0.0300	"	"	"	"	"



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E5a (1805007-30)

Matrix: Water

Sampled: May-02-18 15:08

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.63			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.359			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	141			0.200	"	"	"	"	"
Chromium	0.190			0.005	"	"	"	"	"
Cobalt	0.0187			0.006	"	"	"	"	"
Copper	0.0658			0.0200	"	"	"	"	"
Iron	26.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	74.5			0.200	"	"	"	"	"
Manganese	1.31			0.008	"	"	"	"	"
Molybdenum	0.0272			0.0120	"	"	"	"	"
Nickel	0.0412			0.0120	"	"	"	"	"
Potassium	16.0			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	6.58			0.400	"	"	"	"	"
Strontium	0.705			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0473	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0089			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E5b (1805007-31)

Matrix: Water

Sampled: May-02-18 15:13

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.40			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.240			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	127			0.200	"	"	"	"	"
Chromium	0.315			0.005	"	"	"	"	"
Cobalt	0.0256			0.006	"	"	"	"	"
Copper	0.123			0.0200	"	"	"	"	"
Iron	44.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	64.3			0.200	"	"	"	"	"
Manganese	2.77			0.008	"	"	"	"	"
Molybdenum	0.0396			0.0120	"	"	"	"	"
Nickel	0.0715			0.0120	"	"	"	"	"
Potassium	19.1			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	6.29			0.400	"	"	"	"	"
Strontium	0.218			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0468	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0138			0.005	"	"	"	"	May-10-18
Zinc	0.0499			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E6a (1805007-32)

Matrix: Water

Sampled: May-02-18 15:38

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.01			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.171			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	74.7			0.200	"	"	"	"	"
Chromium	0.0819			0.005	"	"	"	"	"
Cobalt	0.0369			0.006	"	"	"	"	"
Copper	0.0607			0.0200	"	"	"	"	"
Iron	15.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	42.0			0.200	"	"	"	"	"
Manganese	1.64			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0340			0.0120	"	"	"	"	"
Potassium	1.72			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	1.97			0.400	"	"	"	"	"
Strontium	0.0739			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0420	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0078			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E6b (1805007-33)

Matrix: Water

Sampled: May-02-18 15:44

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	13.6			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	1.10			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	30.9			0.200	"	"	"	"	"
Chromium	0.300			0.005	"	"	"	"	"
Cobalt	0.0515			0.006	"	"	"	"	"
Copper	0.134			0.0200	"	"	"	"	"
Iron	42.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	10.7			0.200	"	"	"	"	"
Manganese	1.62			0.008	"	"	"	"	"
Molybdenum	0.0266			0.0120	"	"	"	"	"
Nickel	0.0621			0.0120	"	"	"	"	"
Potassium	3.55			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.32			0.400	"	"	"	"	"
Strontium	0.186			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0642	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0603			0.005	"	"	"	"	May-10-18
Zinc	0.0838			0.0300	"	"	"	"	"





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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E7a (1805007-34)

Matrix: Water

Sampled: May-02-18 16:09

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.80			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.246			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	34.0			0.200	"	"	"	"	"
Chromium	0.0942			0.005	"	"	"	"	"
Cobalt	0.0143			0.006	"	"	"	"	"
Copper	0.0476			0.0200	"	"	"	"	"
Iron	19.5			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	11.9			0.200	"	"	"	"	"
Manganese	2.11			0.008	"	"	"	"	"
Molybdenum	0.0120			0.0120	"	"	"	"	"
Nickel	0.0276			0.0120	"	"	"	"	"
Potassium	23.5			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.38			0.400	"	"	"	"	"
Strontium	0.459			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0883	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0177			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E7b (1805007-35)

Matrix: Water

Sampled: May-02-18 16:35

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	8.19			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.272			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	46.5			0.200	"	"	"	"	"
Chromium	0.0503			0.005	"	"	"	"	"
Cobalt	0.0146			0.006	"	"	"	"	"
Copper	0.0313			0.0200	"	"	"	"	"
Iron	10.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	11.2			0.200	"	"	"	"	"
Manganese	1.52			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0146			0.0120	"	"	"	"	"
Potassium	15.7			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.40			0.400	"	"	"	"	"
Strontium	0.0562			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.194	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0325			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E8a (1805007-36)

Matrix: Water

Sampled: May-03-18 08:40

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.93			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.223			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0685			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	60.6			0.200	"	"	"	"	"
Chromium	0.0598			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0354			0.0200	"	"	"	"	"
Iron	12.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	11.9			0.200	"	"	"	"	"
Manganese	0.177			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0194			0.0120	"	"	"	"	"
Potassium	3.88			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.08			0.400	"	"	"	"	"
Strontium	0.432			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0850	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0208			0.005	"	"	"	"	May-10-18
Zinc	0.115			0.0300	"	"	"	"	"



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Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E8b (1805007-37)

Matrix: Water

Sampled: May-03-18 08:48

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	11.6			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.217			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0862			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	47.8			0.200	"	"	"	"	"
Chromium	0.261			0.005	"	"	"	"	"
Cobalt	0.0155			0.006	"	"	"	"	"
Copper	0.0939			0.0200	"	"	"	"	"
Iron	33.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	20.9			0.200	"	"	"	"	"
Manganese	0.562			0.008	"	"	"	"	"
Molybdenum	0.0339			0.0120	"	"	"	"	"
Nickel	0.0410			0.0120	"	"	"	"	"
Potassium	16.3			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.28			0.400	"	"	"	"	"
Strontium	0.162			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.181	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0465			0.005	"	"	"	"	May-10-18
Zinc	0.696			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E10a (1805007-38)

Matrix: Water

Sampled: May-03-18 07:15

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.10			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.137			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	13.2			0.200	"	"	"	"	"
Chromium	0.0350			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	7.83			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	4.54			0.200	"	"	"	"	"
Manganese	0.238			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	0.948			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	1.82			0.400	"	"	"	"	"
Strontium	0.0218			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0547	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0145			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E10a Dup (1805007-39)

Matrix: Water

Sampled: May-03-18 07:15

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.20			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.0845			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	12.9			0.200	"	"	"	"	"
Chromium	0.0213			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	4.60			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	4.52			0.200	"	"	"	"	"
Manganese	0.130			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	0.804			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	1.79			0.400	"	"	"	"	"
Strontium	0.0181			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0255	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0088			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E10b (1805007-40)

Matrix: Water

Sampled: May-03-18 07:27

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	16.1			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.279			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	17.3			0.200	"	"	"	"	"
Chromium	0.386			0.005	"	"	"	"	"
Cobalt	0.0162			0.006	"	"	"	"	"
Copper	0.112			0.0200	"	"	"	"	"
Iron	44.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	8.33			0.200	"	"	"	"	"
Manganese	1.01			0.008	"	"	"	"	"
Molybdenum	0.0356			0.0120	"	"	"	"	"
Nickel	0.0470			0.0120	"	"	"	"	"
Potassium	2.89			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	2.14			0.400	"	"	"	"	"
Strontium	0.0550			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.441	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0480			0.005	"	"	"	"	May-10-18
Zinc	0.0844			0.0300	"	"	"	"	"



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Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**FB4 (1805007-41)**

**Matrix: Water**

**Sampled: May-03-18 07:36**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	U			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	U			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	U			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	U			0.200	"	"	"	"	"
Manganese	U			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	U			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	U			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U	K		0.006	"	"	"	"	May-21-18
Vanadium	U			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"





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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E10 Equip (1805007-42)

Matrix: Water

Sampled: May-03-18 07:13

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.0067			0.003	"	"	"	"	May-21-18
Beryllium	U			0.002	"	"	"	"	May-10-18
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	0.867			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	0.508			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	0.240			0.200	"	"	"	"	"
Manganese	0.0119			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	U			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	1.08			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U	K		0.006	"	"	"	"	May-21-18
Vanadium	U			0.005	"	"	"	"	May-10-18
Zinc	0.0302			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E9a (1805007-43)

Matrix: Water

Sampled: May-03-18 09:53

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.35			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.156			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	49.0			0.200	"	"	"	"	"
Chromium	0.0852			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0598			0.0200	"	"	"	"	"
Iron	15.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	18.7			0.200	"	"	"	"	"
Manganese	0.240			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0201			0.0120	"	"	"	"	"
Potassium	3.84			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	4.38			0.400	"	"	"	"	"
Strontium	0.249			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0496	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0502			0.005	"	"	"	"	May-10-18
Zinc	0.135			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E9b (1805007-44)

Matrix: Water

Sampled: May-03-18 10:02

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	9.52			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.327			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	45.1			0.200	"	"	"	"	"
Chromium	0.294			0.005	"	"	"	"	"
Cobalt	0.0267			0.006	"	"	"	"	"
Copper	0.0924			0.0200	"	"	"	"	"
Iron	40.5			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	15.6			0.200	"	"	"	"	"
Manganese	1.04			0.008	"	"	"	"	"
Molybdenum	0.0371			0.0120	"	"	"	"	"
Nickel	0.0435			0.0120	"	"	"	"	"
Potassium	7.67			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	4.81			0.400	"	"	"	"	"
Strontium	0.366			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.284	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0605			0.005	"	"	"	"	May-10-18
Zinc	0.184			0.0300	"	"	"	"	"



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**Reported:**  
May-31-18 13:59

**Notes and Definitions**

- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded